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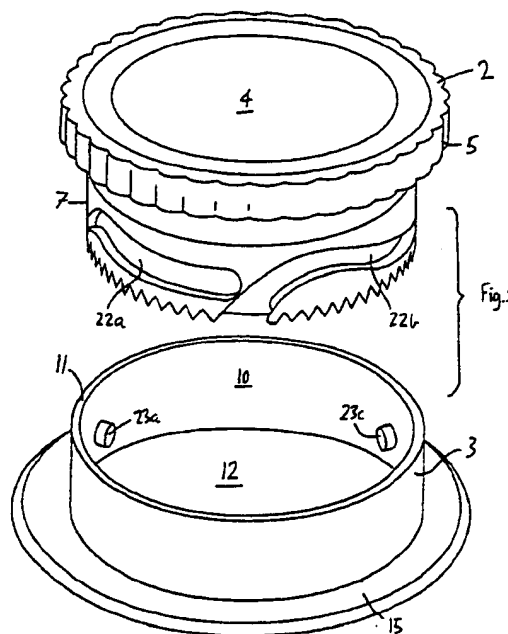
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(54) Opening device for packages of pourable food products

(57) The opening device (1) for packages of pourable food products has a frame (3) connectable to a package, and a sleeve-like portion (10) defined by the frame (3) and having a circular aperture (12) provided therein. A cap (2) releasably engages the sleeve-like portion in a liquid-tight relationship therewith. A cylindrical portion (7) defined by the cap (2) is rotatably accommodatable inside the circular aperture (12), and cutting teeth (17) are connected to the cylindrical portion (7) for cutting packaging material located beneath the circular aperture (12), whereby to open a package. Cam-followers (23a - 23c) connected to an inner annular wall (13) of the sleeve-like portion (10) slidably engage cam-defining contoured slots (22a - 22c) formed on the cylindrical portion, for converting unidirectional rotation of the cap (2) with respect to said frame (3), into bi-directional axial movement of the cylindrical portion with respect to the sleeve-like portion.



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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 5 141 133 A (NINOMIYA SATORU ET AL) 25 August 1992 (1992-08-25) * column 3, line 28 - column 4, line 43; figures 1-4 *	1-4	B65D55/00 B65D5/74 B65D51/22
X	EP 0 328 652 A (TOPPAN PRINTING CO LTD) 23 August 1989 (1989-08-23) * column 4, line 38 - column 7, line 4; figures 1-6 *	1-4	
A	US 5 147 070 A (IWAMOTO HIDECHIKA) 15 September 1992 (1992-09-15) * column 3, line 30 - column 4, line 56; figures *	1-18	
A	US 5 320 233 A (WELCH BING) 14 June 1994 (1994-06-14) * column 2, line 50 - column 3, line 28; figures *	1-18	
A	US 4 591 063 A (GEIGER REINOLD) 27 May 1986 (1986-05-27) * column 4, line 53 - column 6, line 3; figures *	1-18	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B65D
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 1 February 2000	Examiner Olsson, B
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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ON EUROPEAN PATENT APPLICATION NO.**

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01-02-2000

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5141133	A	25-08-1992	NONE	
EP 0328652	A	23-08-1989	AU 616896 B	14-11-1991
			AU 1987388 A	30-01-1989
			CA 1302953 A	09-06-1992
			WO 8900136 A	12-01-1989
			US 5020690 A	04-06-1991
US 5147070	A	15-09-1992	NONE	
US 5320233	A	14-06-1994	AU 7869294 A	22-03-1995
			WO 9506599 A	09-03-1995
US 4591063	A	27-05-1986	FR 2552400 A	29-03-1985
			FR 2567104 A	10-01-1986
			JP 60077870 A	02-05-1985

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